

18. Discuss the following reactions

- (a) Sommelet-Hauser
- (b) Von Richter
- (c) Smiles rearrangements (4+3+3)

19. (a) Discuss the Asymmetric synthesis with suitable examples. (5)

(b) What is R, S notation? Explain with examples. (5)

20. (a) Discuss the conformational analysis of cyclohexane. (5)

(b) Discuss the Octant rule with examples. (5)

NOVEMBER/DECEMBER 2024

## 23PCH11 — ORGANIC REACTION MECHANISM - I

Time : Three hours

Maximum : 75 marks

**SECTION A — (10 × 2 = 20 marks)**

Answer ALL questions.

1. What is the Taft equation?
2. What is a reaction coordinate diagram?
3. State  $S_E^i$  mechanism.
4. What is the Friedel-Crafts alkylation?
5. Define  $S_N^4$  reaction.
6. What is the Bucherer reaction?
7. Define the CIP rule.
8. What is prochirality?
9. What is conformation analysis?
10. Define Brett's rule.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain Hammond's postulate with suitable examples.

Or

(b) Explain the Hammett equation with suitable examples.

12. (a) Discuss the  $SE^1$  and  $SE^2$  mechanisms with suitable examples.

Or

(b) Explain the orientation and reactivity of nitration in disubstituted phenol.

13. (a) Explain the aromatic nucleophilic substitution reaction.

Or

(b) What are the factors affecting the aliphatic nucleophilic substitution reaction? Explain.

14. (a) Discuss the stereochemistry of allenes and spiranes.

Or

(b) What are enantiotropic and diastereotopic atoms? Explain.

15. (a) Discuss the neighboring group participation with examples.

Or

(b) Discuss the axial haloketone rule.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. (a) What are the methods involved in determining the reaction mechanism? Explain.

(b) What is the Cross-over experiment? (8+2)

17. (a) Discuss the aromaticity of benzenoid and non-benzenoid compounds. (2+2)

(b) Friedel-Crafts alylation and acylation reaction. (3+3)